



DOKTORSKÝ STUDIJNÍ PROGRAM/*DOCTORAL STUDY PROGRAM*

VYPSÁNÍ TÉMATU/*LISTING OF TOPIC*

Studijní program/*Study Program*: **Nutrition and Food**

Studijní obor/*Branch of Study*: **program without field**

Katedra/*Department of*: **Microbiology, Nutrition and Dietetics**

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Forma studia/*Form of Study*: **Full_time**

Typ tématu/*Type of Theme*: **framework**

Téma/Topic: The application of essential oils in nanotechnology based food packaging to increase the resistance to insect penetration.

Hypotézy/Hypotheses: The essential oils bounded to PVA or caprolactane increase the protection of packaged food to insect contamination.

Anotace/Summary: Food packages are the last barrier to preventing food for human consumption. The most common package foils are based on plastics. However, there is a strong effort to eliminate plastic applications due to their environmental risks. The nanotechnology brings the possibility of the development of new foil based on poly(vinyl alcohol) or caprolactam. These foils are easily biodegradable and harmful to nature. Their disadvantage is their low resistance to insect penetration. The insect-contaminated food is unsuitable for human consumption because is risky to human health. The study aims to increase the foil resistance by the application of various essential oils to the nanomaterial. The student will be tested on the foil resistance to insect penetration in the penetration apparatus. It includes insect rearing and production. The insect will be transferred to the penetration apparatus and insect penetration (wholes in the foils) will be evaluated after 5 days intervals for 20 days. The different essential oils and their application will be compared. The penetration rate will be evaluated and correlated to the type of essential oils and application. The study brings new foils available in the packaging industry. The students will be introduced to scientific experiments and scientific literature. The study will be located to the Crop Research Institute, Prague..

Zdroje financování práce/*Funding Sources*: project of the Technology Agency of the Czech Republic – project in preparation

V/In Prague

dne/*Date*: 27.10.2018

JAN HUBERT